

AMENDMENTS TO THE CLAIMS

1-8. (Canceled).

9. (Currently Amended) A data sharing apparatus comprising:

a data bus having a data width;

a memory which stores data according to a first-endian byte order;

a first-endian processor logically connected to said ~~memory in a~~ memory in the first-endian byte order via said data bus, wherein said first-endian processor executes a first program that utilizes the first endian byte order in which data is defined as being in a defined order;

a second-endian processor logically connected to said memory in the first-endian byte order via said data bus, wherein said second-endian processor executes a second program that utilizes a second endian byte order in which data that is smaller than the basic word length is defined to be in an order that is reverse of the defined order of the first endian byte order; and

an address conversion unit operable:

(i) to invert values of two least significant bits of an address outputted from said second-endian processor and output an address including the inverted values to said memory when said second-endian processor performs a memory access for 8-bit data;

(ii) to invert a value of a second least significant bit of an address outputted from said second-endian processor and output an address including the inverted value to said memory when said second-endian processor performs a memory access for 16-bit data; and

(iii) to output an address from said second-endian processor to the memory without address conversion when said second-endian processor performs a memory access for data having the width of the first data bus, ~~wherein said memory stores structure data to be accessed by said first-endian processor and said second-endian processor,~~

~~wherein the structure data includes first structure data and second structure data,~~

~~said first-endian processor executes a first program including the first structure data in which data is defined to be in a defined order,~~

~~said second-endian processor executes a second program including the second structure data in which data that is smaller than the basic word length is defined to be in an order that is reverse of the defined order in the first structure data, and~~

~~said first-endian processor reads or writes the structure data to communicate with said second-endian processor, and said second-endian processor reads or writes the structure data to communicate with said first-endian processor.~~

10. (Previously Presented) The data sharing apparatus according to Claim 9, further comprising a transfer unit operable to control data transfer by direct memory access,

wherein, in the case where a source and a destination require data of different endianness and data with a smaller width than the width of the data bus is to be transferred, the transfer unit reverses an order of said data within a basic word length, for the source and the destination.

11. (Previously Presented) The data sharing apparatus according to Claim 10,

wherein the transfer unit includes a conversion unit operable to convert at least one lower bit of an address of either the source or the destination so as to indicate a reversed position of the data in the data bus, and output the converted address to the memory, in the case where a source and a destination require data of different endianness and data with a smaller width than the width of the data bus is to be transferred.

12-15. (Canceled).

16. (Currently Amended) A data sharing apparatus comprising:

a data bus having a data width;

a memory which stores data according to a first-endian byte order;

a first-endian processor logically connected to said ~~memory in a~~ memory in the first-endian byte order via said data bus, wherein said first-endian processor executes a first program that utilizes the first endian byte order in which data is defined as being in a defined order;

a second-endian processor logically connected to said memory in the first-endian byte order via said data bus, wherein said second-endian processor executes a second program that utilizes a second endian byte order in which data that is smaller than the basic word length is defined to be in an order that is reverse of the defined order of the first endian byte order; and

an address conversion unit operable:

(i) to invert values of two least significant bits of an address outputted from said second-endian processor and output an address including the inverted values to said memory when said second-endian processor performs a memory access for 8-bit data;

(ii) to invert a value of a second least significant bit of an address outputted from said second-endian processor and output an address including the inverted value to said memory when said second-endian processor performs a memory access for 16-bit data; and

(iii) to output an address from said second-endian processor to the memory without address conversion when said second-endian processor performs a memory access for data having the width of the first data bus,

~~wherein the structure data includes first structure data and second structure data,~~

a cache memory logically connected to the data bus ~~inabus in the~~ second-endian byte order

~~wherein said memory stores structure data to be accessed by said first-endian processor and said second-endian processor,~~

~~—said first-endian processor executes a first program including the first structure data in which data is defined to be in a defined order, and~~

~~said second-endian processor executes a second program including the second structure data in which data that is smaller than the basic word length is defined to be in an order that is reverse of the defined order in the first structure data, and~~

~~said first-endian processor reads or writes the structure data to communicate with said second-endian processor, and said second-endian processor reads or writes the structure data to communicate with said first-endian processor.~~

17. (Previously Presented) The data sharing apparatus according to Claim 16, further comprising

a transfer unit operable to control data transfer by direct memory access,

wherein, in the case where a source and a destination require data of different endianness and data with a smaller width than the width of the data bus is to be transferred, the transfer unit reverses an order of said data within a basic word length, for the source and the destination.

18. (Previously Presented) The data sharing apparatus according to Claim 17,

wherein the transfer unit includes a conversion unit operable to convert at least one lower bit of an address of either the source or the destination so as to indicate a reversed position of the data in the data bus, and output the converted address to the memory, in the case where a source and a destination require data of different endianness and data with a smaller width than the width of the data bus is to be transferred.

19. (Currently Amended) A method of sharing data in a data processing apparatus which includes a first-endian type processor and a second-endian type processor, and a memory which stores data according to a first-endian byte order and to which both processors are connected via a data bus in a bus in the first-endian byte order and which stores structure data to be accessed by said first-endian processor and said second-endian processor, the structure data including first structure data and second structure data, the method comprising:

causing the first processor to execute a program that utilizes the first endian byte order including the first structure data in which data is defined to be in a defined order, causing the second processor to execute a program that utilizes a second endian byte order in which data that is smaller than the basic word length is defined to be in an order that is reverse of the defined order of the first endian byte order including the second structure data in which data that is smaller than a basic word length is defined to be in an order that is reverse of the defined order in the first structure data, causing the first-endian processor to read or write the structure data to communicate with the second-endian processor, and causing the second-endian processor to read or write the structure data to communicate with the first-endian processor;

(i) inverting values of two least significant bits of an address outputted from the second-

endian processor and outputting an address including the inverted values to the memory when the second-endian processor performs a memory access for 8-bit data;

(ii) inverting a value of a second least significant bit of an address outputted from the second-endian processor and outputting an address including the inverted value to the memory when the second-endian processor performs a memory access for 16-bit data; and

(iii) outputting an address from the second-endian processor to the memory without address conversion when the second-endian processor performs a memory access for data having the width of the first data bus.

20-23. (Canceled).

24. (Previously Presented) The data sharing apparatus according to claim 16, wherein the first-endian type is big-endian and the second-endian type is little-endian.

25. (Previously Presented) The data sharing apparatus according to claim 16, wherein the first-endian type is little-endian and the second-endian type is big-endian.

26. (Previously Presented) The method according to claim 19, wherein the first-endian type is big-endian and the second-endian type is little-endian.

27. (Previously Presented) The method according to claim 19, wherein the first-endian type is little-endian and the second-endian type is big-endian.

28-31 (Canceled).